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MICHAEL A. CARNALL

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EDUCATION

Ph.D., Economics, University of Illinois, Urbana-Champaign, 1996.

M.S., Economics, University of Illinois, Urbana-Champaign, 1995.

M.S., Civil Engineering, Bradley University, Peoria, IL, 1986.

B.S. (Magna Cum Laude), Civil Engineering, Bradley University, Peoria, IL, 1977.

PRESENT EMPLOYMENT

LECG LLC, July 1996 - present.

<u>Senior Managing Economist</u>, January 1999 – present <u>Senior Economist</u>, July 1996 – December 1998

- Research and analyze of issues surrounding the deregulation of telecommunications, providing expert testimony in regulatory and judicial proceedings.
- Design, analyze and critique telecommunications cost models.
- Advise and provide expert testimony regarding statistical and economic issues in service quality standards and measurement.
- Advise clients in the electric power industry on transmission pricing, economic aspects of reliability and competitive distribution access issues.
- Model and analyze domestic and international airline markets in support of expert testimony in litigation and regulatory proceedings.

RESEARCH INTERESTS

Industrial Organization, business reactions to deregulation, regulation and the relationship between business and government.

TEACHING EXPERIENCE

1995-1996: Teaching Assistant, Economic Statistics, University of Illinois.

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• Course in statistics for Economics and other Commerce majors. Included use of all common distributions in hypothesis testing.

1991-1992: Teaching Assistant, Introductory Economics, University of Illinois.

1986-1987: Instructor, Illinois Central College, Peoria, IL (part-time). BASIC and dBASE language programming for personal computers.

1986: Instructor, Fluid Mechanics, Bradley University, Department of Civil Engineering, Peoria, IL.

PROFESSIONAL EXPERIENCE

HAAS SCHOOL OF BUSINESS, University of California, Berkeley, 1993 - 1995. <u>Visiting Researcher</u>

INSTITUTE OF GOVERNMENT AND PUBLIC AFFAIRS, University of Illinois at Urbana-Champaign, 1991 - 1993.

Research Assistant

CATERPILLAR INC., 1978 - 1992.

Consultant, 1991 - 1992.

Develop a system to integrate collection and analysis of internal and external defect records at Leicester, England manufacturing facility.

Senior Reliability Analyst, Service Engineering, Peoria, IL, 1982 - 1991.

Responsible for providing analytical support to Service Engineering Department, the corporate division responsible for liaison between customers, design and manufacturing.

Responsibilities included:

- Develop the quality and reliability measures used as part of the performance standards used to determine each product division's profit sharing potential. Presentation of quarterly reports of these measures to all divisions.
- Host the annual corporate conference presenting new developments in product reliability and quality measurements. The conference was attended by representatives from all subsidiaries.
- Develop systems and procedures to allocate warranty expenses among the product divisions.
- Estimate corporate liability under extended warranty terms.

Facilities Planning Staff Engineer, Mapleton Foundry, 1980 - 1982

Planning, including assessment of need, design liaison, acquisition and installation of capital equipment.

Environmental Engineer, Mapleton Foundry, 1978 - 1980.

Technical assistance to utility operating personnel, acquisition and maintenance of all state and federal permits, review of proposed changes to plant equipment and operating procedures to assure compliance with all environmental regulations.

PRESENTATIONS AND REGULATORY PROCEEDINGS

- Written expert testimony and cross-examination on behalf of Ameritech Michigan regarding service quality standards in (Case No. U-12598, November 2000)
- Written expert testimony and cross-examination on behalf of Ameritech in proceedings to determine the price of "line sharing." Illinois (C.C. Docket 00-0312 and 00-0313, July 2000, C.C. Docket No. 00-0393, September, 2000), Michigan (Case No. U-12540, October 2000)
- Advise U S WEST on appropriate statistical methods for Arizona OSS tests associated with its section 271 application. (May 2000)
- Written expert testimony and cross-examination on behalf of U S WEST regarding statistical methods in rate deaveraging in consolidated cost dockets in Washington (Dockets UT-9603769, UT-960370 and UT-960371, January 2000)
- Ex Parte presentation to FCC on behalf of U S WEST, regarding statistical methods for testing equality of service quality, June 1999.
- Affidavit on behalf of Ameritech Michigan regarding the statistical validity of the sampling procedure used in Ameritech's current AFAM cost model. (MPSC Case No. U-11831, June 1999).
- Oral testimony and written comments on behalf of U S WEST regarding wholesale service quality rules in Colorado (Docket No. Docket No. 97R-153T, February 19, 1998).
- Written expert testimony and cross-examination on behalf of U S WEST regarding statistical measurements of service quality, Arizona (Docket No. U-3021-96-448, June 1998), Utah (Docket on Rules R746-365, June 1998), Iowa (Docket Nos. AIA-96-1 (ARB-96-1), AIA-96-2 (ARB-96-2), March 1998), Minnesota (Docket No. P-442,5321,421/CI-97-381, June 1998)
- Written comments regarding statistical methods for measuring service quality on behalf of U S WEST to the FCC in regard to the FCC NPRM "Performance Measurements and Reporting Requirements for Operations Support Systems, Interconnection, and Operator Services and Directory Assistance" (Docket No. 98-56, RM-9101, June 1998)
- Declaration regarding statistical measurement on behalf of Pacific Bell in "Investigation on the Commission's Own Motion into the Establishment of a Forum to Consider Rates, Rules, Practices and Policies of Pacific Bell and GTE California Incorporated" (Docket No. 90-02-047, August 1998).
- Statement in reply to the U.S. Department of Transportation's "Enforcement Policy Regarding Unfair Exclusionary Conduct in the Air Transportation Industry" (Docket OST-98-3713, September 1998)
- Participant in panel discussion on airline competition at the annual meeting of the National Association of State Aeronautics Officials. (October 1998)
- Written expert testimony and cross-examination on behalf of U S WEST for consolidated cost dockets in Washington (Dockets UT-9603769, UT-960370 and UT-960371, June 1997) and Utah (Docket No. 94-999-01, May 1997).
- Participant in cost workshops on behalf of U S WEST with the Utah Division of Public Utilities (February 1997), Washington (March 1997), Minnesota (May 1997).
- Oral testimony and cross-examination on behalf of U S WEST in Wyoming (Docket No. 70000-TR-96-323, June 1997).

DISSERTATION TOPIC

"Three Essays on Demand and Cost in the Deregulated Domestic Airline Industry" Topics include:

"Airline Hubs: Costs, Markups and the Implications of Customer Heterogeneity"

"Evolution of Demand and Marginal Cost in the U.S. Airline Industry from 1985 to 1993"

"The Effects of Bankruptcy on the Demand and Marginal Cost of Passenger Airlines"

PUBLICATIONS

"Airline Hubs: Costs, Markups and the Implications of Customer Heterogeneity", with Steven Berry and Pablo T. Spiller, NBER Working Paper 5561, May 1996.

HONORS AND PROFESSIONAL ACTIVITIES

Licensed Professional Engineer, State of Illinois.

Member National Society of Professional Engineers.

Member American Society of Civil Engineers.

Member of Tau Beta Pi, engineering honorary.

November 2000